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Published in:
Danish Medical Journal

Publication date:
2017

Document version
Publisher's PDF, also known as Version of record

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ABSTRACT

INTRODUCTION: Antibiotic resistance is a growing threat to public health, and antibiotic prescribing increases. About 90% of antibiotics are prescribed in general practice, mostly for acute respiratory tract infections. It is well known that patient expectations and general practitioners' misinterpretation of patients' expectations are associated with antibiotic overuse. The aim of this study was to explore Danish patients' expectations when consulting a general practitioner with symptoms of acute respiratory tract infection, and to determine predictors for these expectations.

METHODS: A questionnaire survey was conducted in Danish primary care during 2014. Patients aged ≥ 18 years were asked about their expectations to the consultation when consulting with symptoms of acute respiratory tract infections. Associations between socio-demographic characteristics, self-reported antibiotic prescription and patients' expectations were also explored.

RESULTS: A total of 567 patients with symptoms of acute respiratory tract infections were recorded as interested in receiving a questionnaire, 361 of whom responded. The majority expected an examination (94.6%) and an explanation (85.9%). About one third expected antibiotic treatment (32.3%). Patients who expected an antibiotic were more than eight times more likely to be prescribed one than were patients not expecting an antibiotic (odds ratio = 8.6 (95% confidence interval: 4.63-16.03); $p < 0.001$).

CONCLUSIONS: Most Danish patients expected an examination and/or an explanation of their symptoms when consulting with their general practitioner.

FUNDING: The study was, in part, funded by The Council for Quality Assurance in Primary Care in both The Region of Southern Denmark and Region Zealand. Malene Plejdrup Hansen received a postdoctoral scholarship in general practice and family medicine from The Novo Nordic Foundation. The sponsors have not been involved in the design or the development of the study.

TRIAL REGISTRATION: This study was registered with the Danish Data Protection Agency (R. no. 2013-41-2582).

Antibiotic resistance is a growing threat to public health worldwide [1]. The rising problem of antibiotic resistance is due mainly to high antibiotic prescribing rates [2]. Overall, 90% of antibiotics are prescribed in general practice [3], and most of these prescriptions are for acute respiratory tract infections (RTIs) [4]. However, most RTIs are self-limiting and often of viral origin, and antibiotics will therefore have limited or even no effect [5]. Furthermore, the risk of serious complications like mastoiditis or quinsy is very low in developed countries, even without antibiotic treatment [6].

Prescribing rates in Northern Europe, including Denmark, are relatively low, and often narrow-spectrum penicillin is prescribed [7]. However, the total antibiotic use in Denmark has risen during the past decade and the rise has predominantly been observed for broad-spectrum antibiotics [3].

Various factors have been associated with high prescribing rates in general practice, such as difficulties in differentiating between viral and bacterial origin [8], doctor characteristics [9] as well as the patients' expectations and the doctors' perception of patient expectations [10-12]. Patient expectations of a consultation are continually being explored, and studies have demonstrated a varying demand for antibiotic treatment [10, 12, 13]. International studies demonstrate that patients are seeking reassurance and symptom relief [14] and that patient satisfaction is associated with receiving proper information [10, 12]. This indicates a need for better communication and understanding between the general practitioner (GP) and his or her patients.

The aim of this study was to explore Danish patients' expectations when consulting their GP with symptoms of RTI and to determine predictors for these expectations in order to optimise antibiotic prescribing in general practice.

METHODS

Study design

During a four-week-period in January to March 2014, a questionnaire survey was conducted in Danish primary care in the Region of Southern Denmark and Region Zealand. This survey was part of an audit of consultations dealing with patients with RTI symptoms. All GPs in the two regions were invited to participate in the study.

The GPs had received written information about the project and were asked to ensure that patients received thorough information about the survey and gave their

ORIGINAL ARTICLE

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Dan Med J 2017;64(6):A5385

FIGURE 1

Flow diagram of the study population in the audit of respiratory tract infection (RTI).

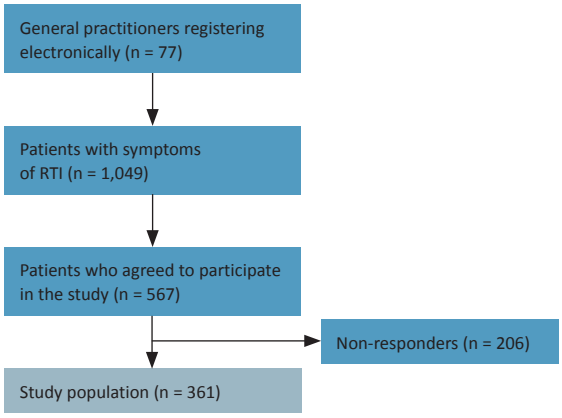

TABLE 1

Patient characteristics (N = 361).

	Study population, n (%)[a]
Sex	
Female	236 (65.6)
Male	124 (34.4)
Age, yrs	
18-30	48 (13.3)
31-45	87 (24.2)
46-60	121 (33.6)
> 60	104 (28.9)
Level of education, yrs	
< 10	60 (16.9)
10-12	83 (23.3)
> 12	213 (59.8)
Labour market affiliation[b]	
Within labour market	248 (69.5)
Out of labour market	109 (30.5)
Educated/working in healthcare	
Yes	71 (20.2)
No	281 (79.8)
Educated/working in agriculture	
Yes	15 (4.3)
No	334 (95.7)
Antibiotic prescription (self-reported)	
Yes	201 (55.7)
No	160 (44.3)

a) Total numbers for each group may not add to full sample due to missing values.
b) Within: students, self-employed or salaried employee, on leave or sick-leave; out of: receiving early retirement pension or old age pension and unemployed or receiving disability pension.

verbal consent to receive a questionnaire before they were enrolled. Patients aged ≥ 18 years consulting their GP with RTI symptoms were informed and asked to participate in the project. Patients who accepted the invitation were sent a questionnaire within a week from their consultation, and a reminder was sent after one month to all non-responders.

In accordance with Danish legislation, no ethical approval was needed for this study. The project was approved by the Danish Data Protection Agency (R. no. 2013-41-2582).

Questionnaire and outcomes

A questionnaire was developed to explore Danish patients' expectations of the management of RTI symptoms and to clarify their knowledge and beliefs about RTIs and antibiotic treatment. Results concerning Danish patients' knowledge and beliefs will be published separately. The items of the questionnaire were based on a review of relevant literature as well as on clinical empirical knowledge [10, 14].

To explore their expectations to the consultation, patients were asked the following three questions:

1) "I primarily saw my GP because I wanted an explanation of my symptoms"
2) "I primarily saw my GP because I wanted to be examined"
3) "I primarily saw my GP because I wanted to be treated with antibiotics".

Patients were asked to rate their agreement with the questions on a five-point Likert scale, ranging from 1 (= totally agree) through 3 (= neither agree nor disagree) to 5 (= totally disagree). The respondents were allowed to choose more than one of the expectations.

In addition, we gathered sociodemographic information (age, sex, educational level, labour market affiliation, educated/working in healthcare or agriculture) and patients were asked if they were prescribed an antibiotic (self-reported antibiotic prescription).

The development of the questionnaire followed standardised and widely recognised procedures, including qualitative pilot testing [15]. Preceding the pilot testing, a discussion and content validation was conducted in an academic setting counting GPs, a clinical pharmacologist and a clinical microbiologist. The questionnaire was pilot tested through observational responses to ensure comprehensibility, relevance, acceptability and feasibility. This triggered some minor adjustments. Proofreading was conducted on 5% of data with the finding of zero errors.

Statistical analysis

The five-point Likert Scale used for the assessment of patient expectations for the consultation was categorised into "Yes" (totally agree and agree), "Don't know" (neither agree nor disagree) and "No" (disagree and to-

tally disagree). For regression analysis, we dichotomised the answers into "Yes" (totally agree and agree) and "No" (neither agree nor disagree, disagree and totally disagree). Age was categorised as follows: 18-30, 31-45, 46-60 and > 60 years. Labour market affiliation was defined as "Within labour market" (students, self-employed or salaried employee, on leave or sick-leave and other), and as "Out of labour market" (receiving early retirement pension or old age pension and unemployed or receiving disability pension). Missing values were excluded from the data. No more than 20 (5.5%) missing values were deducted from any single variable.

Patient expectations to each of the three outcomes were reported as numbers and percentages with a 95% confidence interval (CI), based on the binominal distribution. Multiple logistic regression was used to analyse associations between socio-demographic characteristics, self-reported antibiotic prescription and patient expectations to each of the three outcomes. We adjusted for possible confounders (gender, age and labour market affiliation).

STATA statistical software 13.1 (StataCorp, College Station TX, USA) was used to perform the statistical analyses.

Trial registration: This study was registered with the Danish Data Protection Agency (R. no. 2013-41-2582).

RESULTS

A total of 1,049 patients were recorded with RTI symptoms during the study period. About half of the potential participants (n = 567) were registered as interested in receiving a questionnaire, 361 of whom responded (**Figure 1**).

The sociodemographic characteristics of the study population are listed in **Table 1**.

Main findings

The majority of Danish patients consulting the GP with symptoms of an RTI primarily expected an examination (94.6%) as well as an explanation of their symptoms (85.9%). About 32% of the patients expected antibiotic treatment (**Table 2**).

Sociodemographic characteristics and treatment with antibiotics

Table 2 also illustrates socio-demographic characteristics and self-reported antibiotic prescription in relation to patient expectations. We observed no major differences between female and male patients with regard to expecting an explanation (83.9% versus 89.3%) or an examination (94.8% versus 94.2%). However, more female patients expected an antibiotic treatment for their RTI symptoms (35.4% versus 26.5%).

Associations between patient characteristics, antibiotic prescriptions and patient expectations

Odds ratios (OR) for the associations between patient expectations, patient characteristics and antibiotic prescriptions are shown in **Table 3**.

We found that patients aged 46-60 years had significantly lower odds of expecting an antibiotic treatment compared with the group aged 18-30 years (OR = 0.3 (95% CI: 0.16-0.74); p = 0.006). Patients who were prescribed an antibiotic had lower odds of expecting an explanation than individuals who were not prescribed antibiotics (OR = 0.3 (95% CI: 0.17-0.69); p = 0.003). Furthermore, antibiotic prescribing was positively associated with expecting an antibiotic treatment (OR = 8.6 (95% CI: 4.63-16.03); p < 0.001) (Table 3).

DISCUSSION

Summary of main findings

We found that the majority of Danish patients expected an examination and an explanation when consulting the GP with RTI symptoms. Furthermore, about one third expected an antibiotic treatment. Importantly, patients who expected an antibiotic were more than eight times more likely to be prescribed one.

Strengths and limitations

To our knowledge, this is the first study to explore Danish patient expectations for consultation regarding RTI symptoms. However, some limitations need to be kept in mind when interpreting the study results.

The GPs participated on a voluntary basis in the audit and those who participated may have been more interested in quality development than other GPs in Denmark [16]. Strandberg et al have previously shown that GPs who participate in an audit on RTI treatment differ from the onset from GP non-participants with respect to their prescribing patterns [17]. This may affect their patients' expectations, since they may already be aware of the limited effect of antibiotic treatment on most RTIs. Consequently, the expectations of an examination and/or an explanation could have been overestimated, whereas the expectations for antibiotic treatment could have been underestimated.

Only about half of the potential participants were registered as being interested in participating in this survey (567/1,049). Lack of time for enrolment during GP consultations, GPs simply forgetting to inform patients about the survey or GPs judging that the patient should not take part in this survey might be some of the explanations for this finding. This limitation might have been overcome if the research team had approached patients with RTI symptoms directly. However, a relatively large response rate of 64% was obtained among those asked to participate (361/567).

TABLE 2

Danish patient expectations for a consultation on acute respiratory tract infection[a,b].

	Explanation		Examination		Antibiotic treatment	
Patient characteristic	**n**	**% (95% CI)**	**n**	**% (95% CI)**	**n**	**% (95% CI)**
All	298	85.9 (81.78-89.18)	331	94.6 (91.63-96.52)	110	32.3 (27.49-37.43)
Sex						
Female	188	83.9 (78.48-88.21)	217	94.8 (90.97-97.01)	79	35.4 (29.38-41.97)
Male	109	89.3 (82.39-93.76)	113	94.2 (88.15-97.22)	31	26.5 (19.20-35.35)
Age, yrs						
18-30	38	80.9 (66.51-89.98)	43	89.6 (76.69-95.74)	21	43.8 (30.09-58.42)
31-45	70	80.5 (70.57-87.61)	81	94.2 (86.57-97.60)	31	36.5 (26.78-47.40)
46-60	99	83.9 (76.00-89.56)	112	95.7 (90.02-98.23)	26	22.6 (15.79-31.28)
> 60	90	95.7 (89.03-98.42)	94	95.9 (89.46-98.49)	32	34.8 (25.62-45.23)
Level of education, yrs						
< 10	52	96.3 (85.81-99.11)	58	100.0 (-)	16	29.1 (18.37-42.79)
10-12	69	86.3 (76.60-92.32)	76	93.8 (85.78-97.46)	29	38.2 (27.76-49.77)
> 12	174	83.3 (77.51-87.76)	192	93.2 (88.81-95.95)	61	29.8 (23.85-36.42)
Labour market affiliation						
Within labour market	201	82.7 (77.39-87.00)	228	93.8 (89.98-96.26)	71	29.6 (24.11-35.71)
Out of labour market	95	95.0 (88.39-97.94)	99	96.1 (89.96-98.56)	35	36.1 (27.02-46.26)
Educated/working in healthcare						
Yes	52	80.0 (68.18-88.19)	63	92.7 (83.19-96.98)	22	33.3 (22.82-45.82)
No	240	87.6 (83.10-91.02)	260	94.9 (91.53-96.96)	82	30.7 (25.44-36.54)
Educated/working in agriculture						
Yes	13	100 (-)	14	100.0 (-)	6	42.9 (18.27-71.57)
No	279	85.6 (81.31-89.01)	306	94.2 (91.00-96.25)	99	31.2 (26.34-36.57)
Antibiotic prescription (self-reported)						
Yes	155	80.7 (74.47-85.75)	183	93.9 (89.43-96.49)	93	48.4 (41.38-55.55)
No	143	92.3 (86.79-95.58)	148	95.5 (90.76-97.85)	17	11.4 (7.17-17.67)

CI = confidence interval.
a) Expectations for explanation, examination and antibiotic treatment were dichotomised into "Yes" (totally agree and agree) and "No" (neither agree nor disagree, disagree and totally disagree).
b) Total numbers for each group may not add to full sample due to missing values.

Previous studies have found that patient expectations did not change significantly between pre-and post-visit questionnaires [10, 14]. However, we still find it important to emphasise that this study is based on a post-visit questionnaire and that patient expectations may have been influenced by the information given during the preceding consultation.

Many patients stated more than one "primary expectation" for the consultation. Consequently, it is not possible to report which one was more important for the patients. In order to estimate patients´ true priority of expectations, a rating of these could have been requested.

Dichotomisation might lead to loss of information. However, this approach is commonly applied and we believe that patients who neither agreed nor disagreed could not have had a clear expectation about the question, why these were included in "No".

Finally, it is important to acknowledge the variety of diseases when dealing with RTI symptoms. Some patients might have been presenting with symptoms of pneumonia, others might have been presenting with symptoms of a common cold. We cannot rule out cohesion between severity of the symptoms and expectations of antibiotics. However, the indication and severity of the symptoms were not available in our data and thus could not be adjusted for in a multivariate analysis.

Comparison with existing literature and implications

This study demonstrates that Danish patients were more likely to expect an examination and an explanation than an antibiotic treatment when contacting their GP with RTI symptoms. Our findings are in accordance with Welschen et al who showed that 90% of Dutch patients expected information, while only 50% expected antibiotics [12]. Furthermore, they found that information/reassurance was more strongly associated with patient satisfaction than antibiotic treatment.

Van Driel et al found that the three most frequently endorsed reasons for visiting the physician were examination, pain relief and information [14]. Interestingly, they demonstrated that patients who considered that

TABLE 3

Predictors for patient expectations when presenting with symptoms of a respiratory tract infection[a].

	Of an explanation			Of an examination			Of an antibiotic treatment		
Patient characteristic	OR	adjusted OR[b] (95% CI)	p-value	OR	adjusted OR[b] (95% CI)	p-value	OR	adjusted OR[b] (95% CI)	p-value
Sex									
Female	Ref.			Ref.			Ref.		
Male	1.6	1.7 (0.81-3.46)	0.160	0.9	0.8 (0.28-2.11)	0.615	0.7	0.7 (0.41-1.17)	0.175
Age, yrs									
18-30	Ref.			Ref.			Ref.		
31-45	1.0	0.9 (0.36-2.26)	0.820	1.9	1.9 (0.52-7.27)	0.326	0.7	0.7 (0.35-1.54)	0.419
46-60	1.2	1.1 (0.43-2.61)	0.908	2.6	2.6 (0.70-10.0)	0.152	0.4	0.3 (0.16-0.74)	0.006
> 60	5.3	2.6 (0.58-11.7)	0.211	2.7	2.5 (0.40-15.9)	0.329	0.7	0.5 (0.20-1.36)	0.184
Level of education, yrs									
< 10	4.1	3.2 (0.64-15.6)	0.157	–	–	–	0.7	0.5 (0.25-1.22)	0.139
10-12	Ref.			Ref.		–	Ref.		
> 12	0.8	1.0 (0.45-2.06)	0.916	0.9	0.9 (0.31-2.68)	0.864	0.7	0.7 (0.37-1.18)	0.164
Labour market affiliation									
Within labour market	Ref.			Ref.			Ref.		
Out of labour market	4.0	2.2 (0.68-7.48)	0.186	1.6	1.2 (0.25-5.99)	0.804	1.3	1.6 (0.74-3.28)	0.248
Educated/working in healthcare									
Yes	Ref.			Ref.			Ref.		
No	1.8	1.4 (0.65-2.98)	0.389	1.5	1.5 (0.50-4.80)	0.449	0.9	1.0 (0.52-1.76)	0.883
Educated/working in agriculture									
Yes	–			–			1	1	
No	–			–			0.6	0.6 (0.18-1.8)	0.334
Antibiotic prescription									
Yes	0.4	0.3 (0.17-0.69)	0.003	0.7	0.7 (0.25-1.73)	0.395	7.3	8.6 (4.63-16.03)	0.000
No	Ref.			Ref.			Ref.		

CI = confidence interval; OR = odds ratio; ref. = reference.

a) Expectations for explanation, examination and antibiotic treatment were dichotomised into "Yes" (totally agree and agree) and "No" (neither agree nor disagree, disagree and totally disagree).

b) Adjusted for sex, age and labour market affiliation.

antibiotics were very/rather important valued pain relief significantly more than patients who considered that antibiotics were of little/no importance. This finding may indicate that patients who report that they expect antibiotics are actually asking for pain relief medication. Other studies have also found that patients want a diagnosis, reassurance and relief from symptoms or pain rather than antibiotic treatment [13].

This study contributes to a better understanding of Danish patient expectations. Interestingly, 55.7% reported that they were treated with an antibiotic, while only 32% expected an antibiotic prescription. Appropriately managing patient expectations in consultations for an RTI is crucial in reducing inappropriate prescribing. GPs are nearly three times more likely to prescribe antibiotics if they believe that their patients expect antibiotics [18] as perceived patient demand has been found to have a significant and independent effect on prescribing behaviour [19]. However, it has also been shown that there is a large degree of inaccuracy in doctors' perception of their patients´ desire for antibiotics [10]. Consequently, interventions that reduce patients' perceived need for antibiotics and reduce demand should be tested in Danish general practice. For example, a newly published Cochrane review found that interventions facilitating shared decision-making for RTIs significantly reduced antibiotic prescribing in general practice [20].

CONCLUSIONS

Danish patients with RTI symptoms mainly expected an examination and an explanation, and to a far lesser extent antibiotic treatment, when consulting their GP. Importantly, patients who reported that they expected an antibiotic prescription were more than eight times more likely to be prescribed one.

The results of this study indicate that GPs should verbalise and reconcile patients' expectations prior to antibiotic prescribing for RTIs. A better understanding of patients' expectations may assist GPs in reducing the use of antibiotics and consequently have a positive effect on the growing problem with antibiotic resistance.

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ACCEPTED: 27 April 2017

CONFLICTS OF INTEREST: *Malene Plejdrup Hansen* received funding in the form of a postdoctoral scholarship in general practice and family medicine from The Novo Nordic Foundation. Disclosure forms provided by the authors are available with the full text of this article at www.danmedj.dk

ACKNOWLEDGEMENTS: This project is part of the Audit Project Odense (APO), Denmark. The questionnaire, on which the study is based, was developed by *Malene Plejdrup Hansen, Dorte Ejg Jarbøl, Anders Munck, Lars Bjerrum* and *Bente Gahrn-Hansen*. The authors would like to thank *Susanne Døssing Berntsen* for helping with data-management.

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LITERATURE

1. World Health Organization. Antimicrobial resistance : global report on surveillance. (In IRIS). Geneva: WHO, 2014:232.
2. Costelloe C, Metcalfe C, Lovering A et al. Effect of antibiotic prescribing in primary care on antimicrobial resistance in individual patients: systematic review and meta-analysis. BMJ 2010;340:c2096.
3. DANMAP 2013. Use of antimicrobial agents and occurence of antimicrobial resistance in bacteria from food animals, food and humans in Denmark. Copenhagen: Danish Ministry of Food, Agriculture and Fisheries and the Danish Ministry of Health, 2014.
4. Muscat M, Monnet DL, Klemmensen T et al. Patterns of antibiotic use in the community in Denmark. Scand J Infect Dis 2006;38:597-603.
5. Smith SM, Fahey T, Smucny J et al. Antibiotics for acute bronchitis. Cochrane Database Syst Rev 2014;3:CD000245.
6. Little P, Stuart B, Hobbs FD et al. Predictors of suppurative complications for acute sore throat in primary care: prospective clinical cohort study. BMJ 2013;347:f6867.
7. Surveillance of antimicrobial consumption in Europe 2012. Stockholm: European Centre for Disease Prevention and Control, 2014.
8. Hopstaken RM, Stobberingh EE, Knottnerus JA et al. Clinical items not helpful in differentiating viral from bacterial lower respiratory tract infections in general practice. J Clin Epidemiol 2005;58:175-83.
9. Akkerman AE, Kuyvenhoven MM, van der Wouden JC et al. Prescribing antibiotics for respiratory tract infections by GPs: management and prescriber characteristics. Br J Gen Pract 2005;55:114-8.
10. Hamm RM, Hicks RJ, Bemben DA. Antibiotics and respiratory infections: are patients more satisfied when expectations are met? J Fam Pract 1996;43:56-62.
11. Coenen S, Francis N, Kelly M et al. Are patient views about antibiotics related to clinician perceptions, management and outcome? A multi-country study in outpatients with acute cough. PLoS One 2013;8:e76691.
12. Welschen I, Kuyvenhoven M, Hoes A et al. Antibiotics for acute respiratory tract symptoms: patients' expectations, GPs' management and patient satisfaction. Fam Pract 2004;21:234-7.
13. Linder JA, Singer DE. Desire for antibiotics and antibiotic prescribing for adults with upper respiratory tract infections. J Gen Intern Med 2003;18: 795-801.
14. van Driel ML, De Sutter A, Deveugele , et al. Are sore throat patients who hope for antibiotics actually asking for pain relief? Ann Fam Med 2006;4: 494-9.
15. de Vet HCT, Terwee CB, Mokkink LB et al, eds. Measurement in medicine – a practical guide. New York: Cambridge University Press, 2011.
16. Munck AP, Damsgaard JJ, Hansen DG et al. The APO method – a popular form of quality development in general practice. Ugeskr Læger 2002; 164:5390-3.
17. Strandberg EL, Ovhed I, Troein M et al. Influence of self-registration on audit participants and their non-participating colleagues. A retrospective study of medical records concerning prescription patterns. Scand J Prim Health Care 2005;23:42-6.
18. Little P, Dorward M, Warner G et al. Importance of patient pressure and perceived pressure and perceived medical need for investigations, referral, and prescribing in primary care: nested observational study. BMJ 2004; 328:444.
19. Coenen S, Michiels B, Renard D et al. Antibiotic prescribing for acute cough: the effect of perceived patient demand. Br J Gen Pract 2006;56: 183-90.
20. Coxeter P, Del Mar CB, McGregor L et al. Interventions to facilitate shared decision making to address antibiotic use for acute respiratory infections in primary care. Cochrane Database Syst Rev 2015;11:CD010907.